



IPIC 2023

9th International
Physical Internet Conference

June 13-15, 2023
Athens, Greece



Enabling the PI to solve multi-layered problems of the last mile logistics

Javi Esquillor – Katharina Beck



13-15 JUNE 2023 Athens, Greece
www.pi.events/IPIC2023

alice | Alliance for
Logistics Innovation
through Collaboration
in Europe



Expanding the logistics Scope

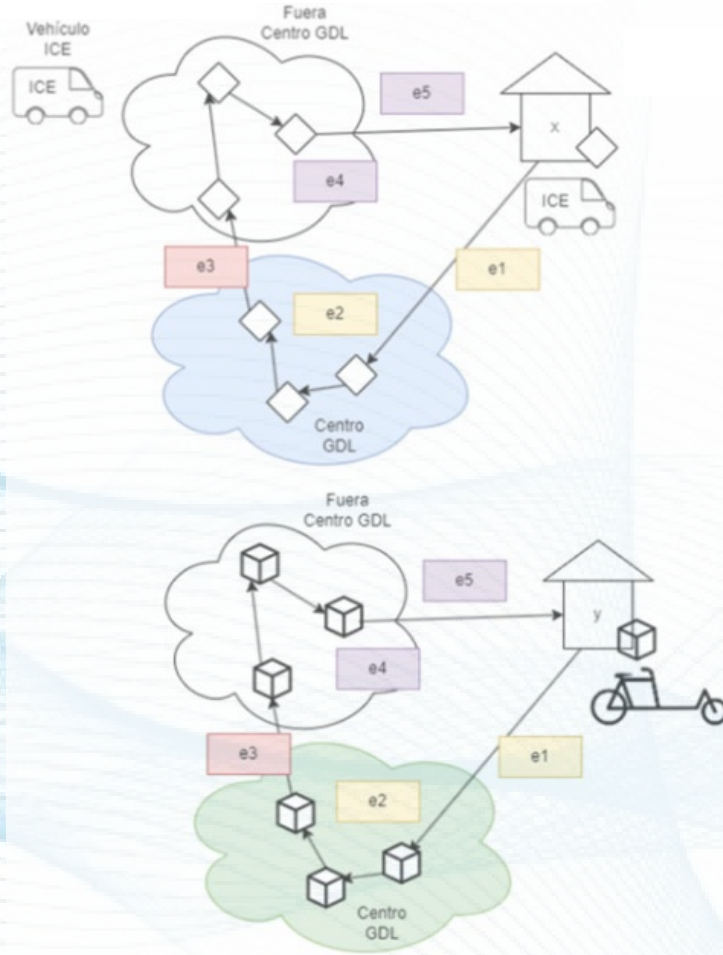
Agenda

- Casework Guadalajara, México
- Methodology scope
 - PI roadmap
 - City logistics
 - Challenges
- Applied development – DEARBOMILE
 - Clusterization
 - Gap analysis
 - Core digital infrastructure
- DEARBOMILE`s next steps

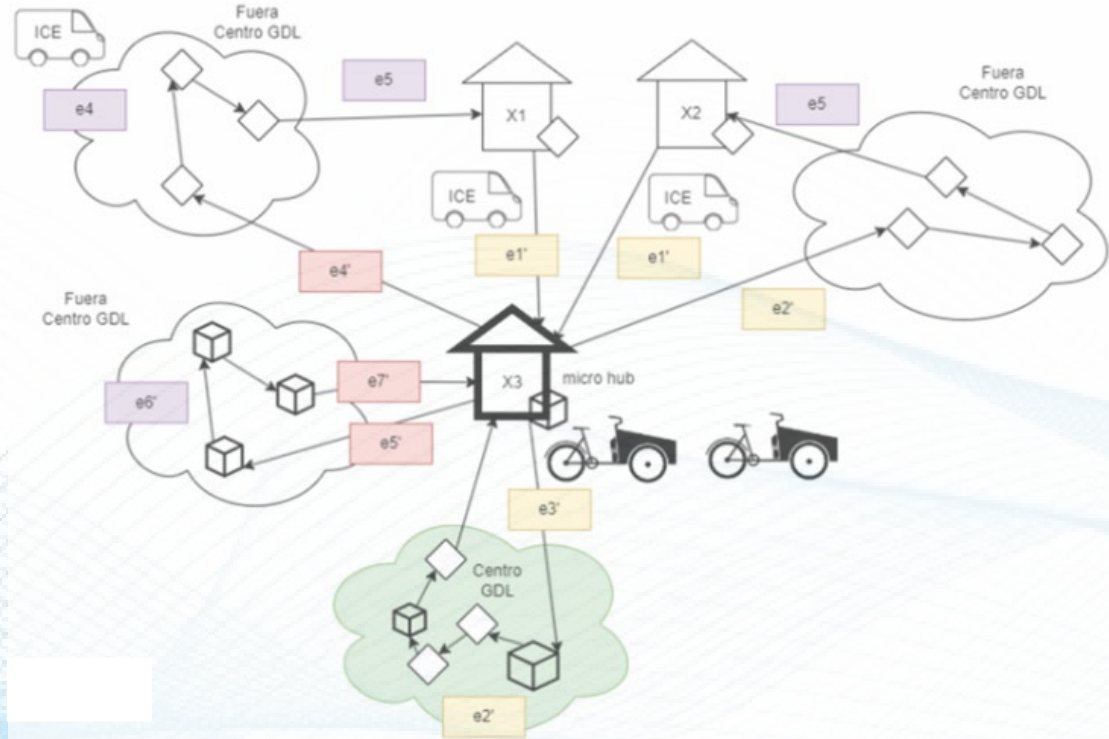
Collaboration with cyclelogistics in GDL, Mx

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Pre-pilot



Pilot



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Collaboration with cyclelogistics in GDL, Mx

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Results



CO_{2eq}
kg*km

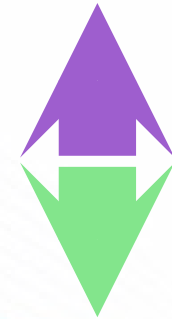
60-70%



\$

operations costs

15-25%



Social

4 half-FTE

+100\$/h

20-24% km

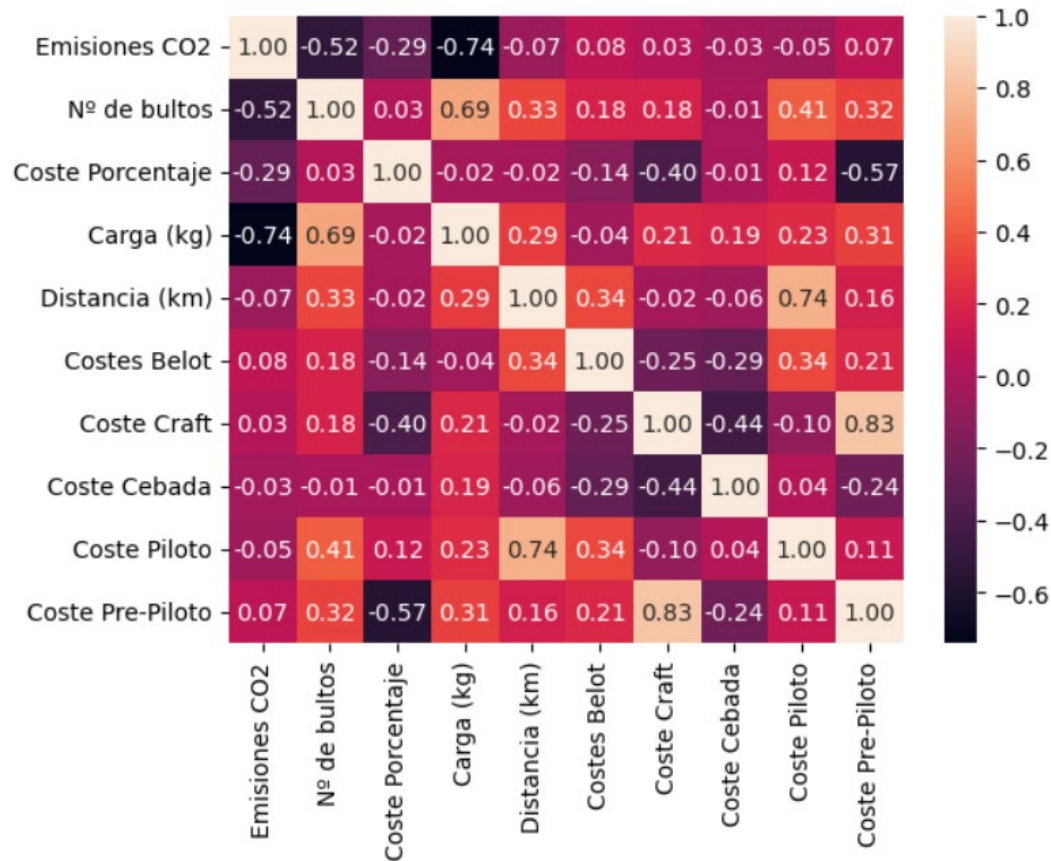
40-48km

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Collaboration with cyclelogistics in GDL, Mx



Splitting cost in collaboration



Scale up

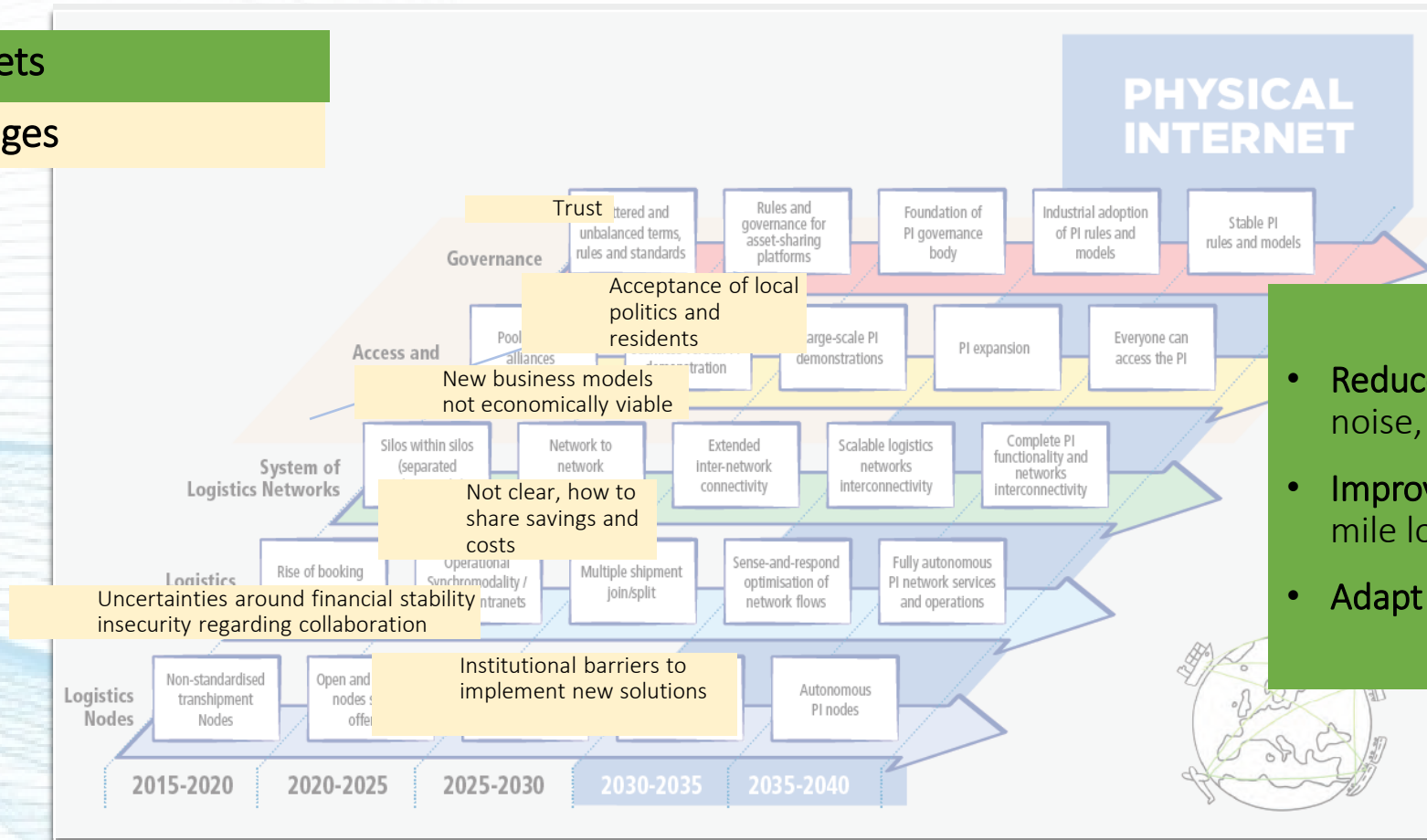
- Business informed Low Emission Zones
- Charging infrastructure deployment
- Digital infrastructure for data flowing
- Neutral entity for enabling capacities
 - Hubs
 - Vehicles
 - Digital

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Digital, City Logistics and PI

PI-City logistics targets

Barriers and challenges



- Reduce congestion, emissions, noise, pollution
- Improve the quality of life & last mile logistics
- Adapt business models

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PI and Functional Criteria

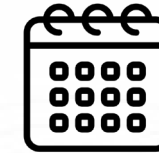
5 pillars to articulate action

Logistics and Data Spaces - Decarbonizing urban economy



Collaboration

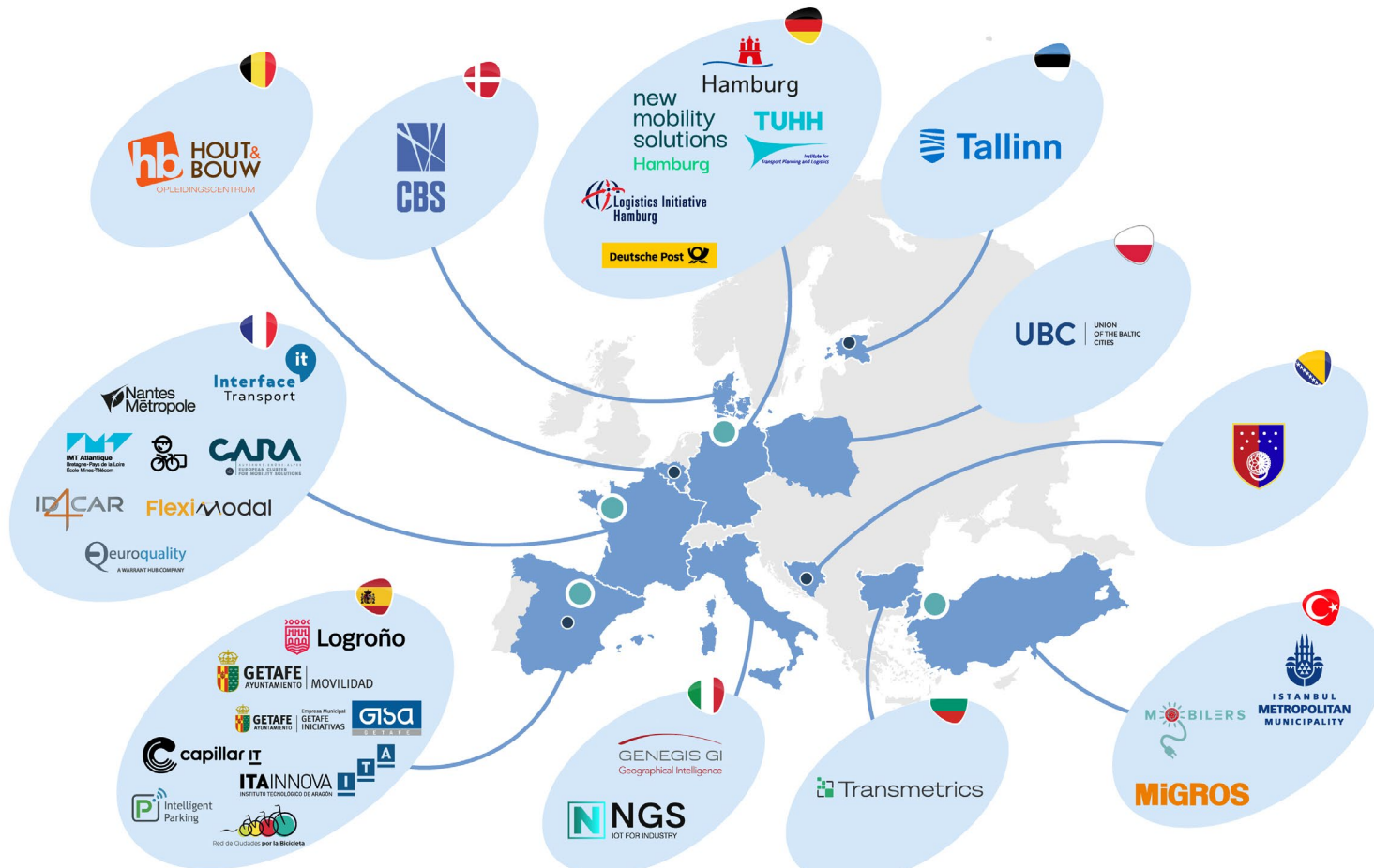
Systematize, complete, scale



48
months

1st September 2022

31st August 2026



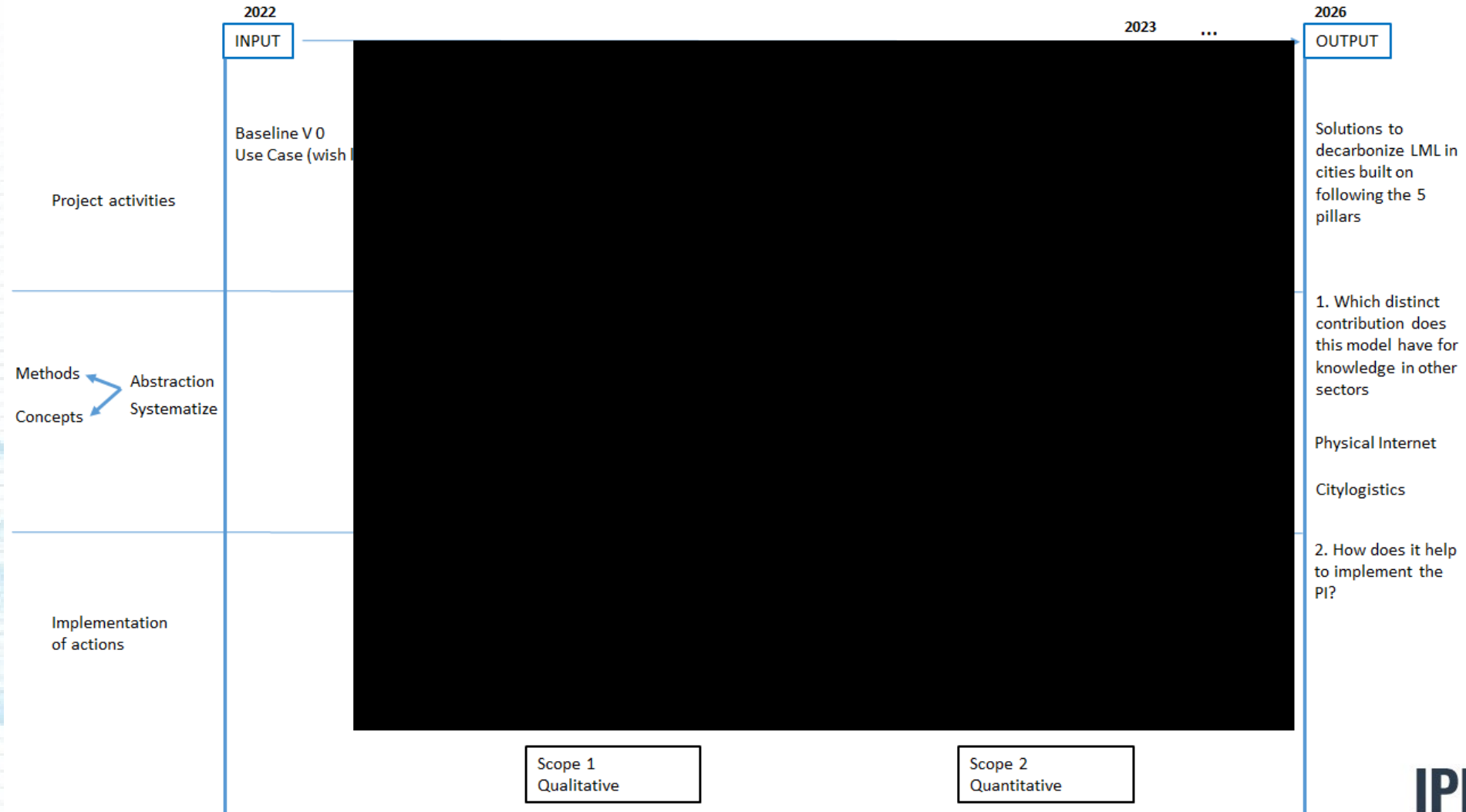
DECARBOMILE develops **interoperable and multimodal logistics solutions** for **decarbonised last-mile delivery** in urban contexts.

These different solutions will be further tested in **4 Living Labs** and **4 Satellites** to demonstrate their **effectiveness** and **replicability** potential.

This project has received funding from the **Horizon Europe** Research and Innovation program, grant agreement No. 101069806, under the topic: HORIZON-CL5-2021-D6-01 Safe, Resilient Transport and Smart Mobility services for passengers and goods.

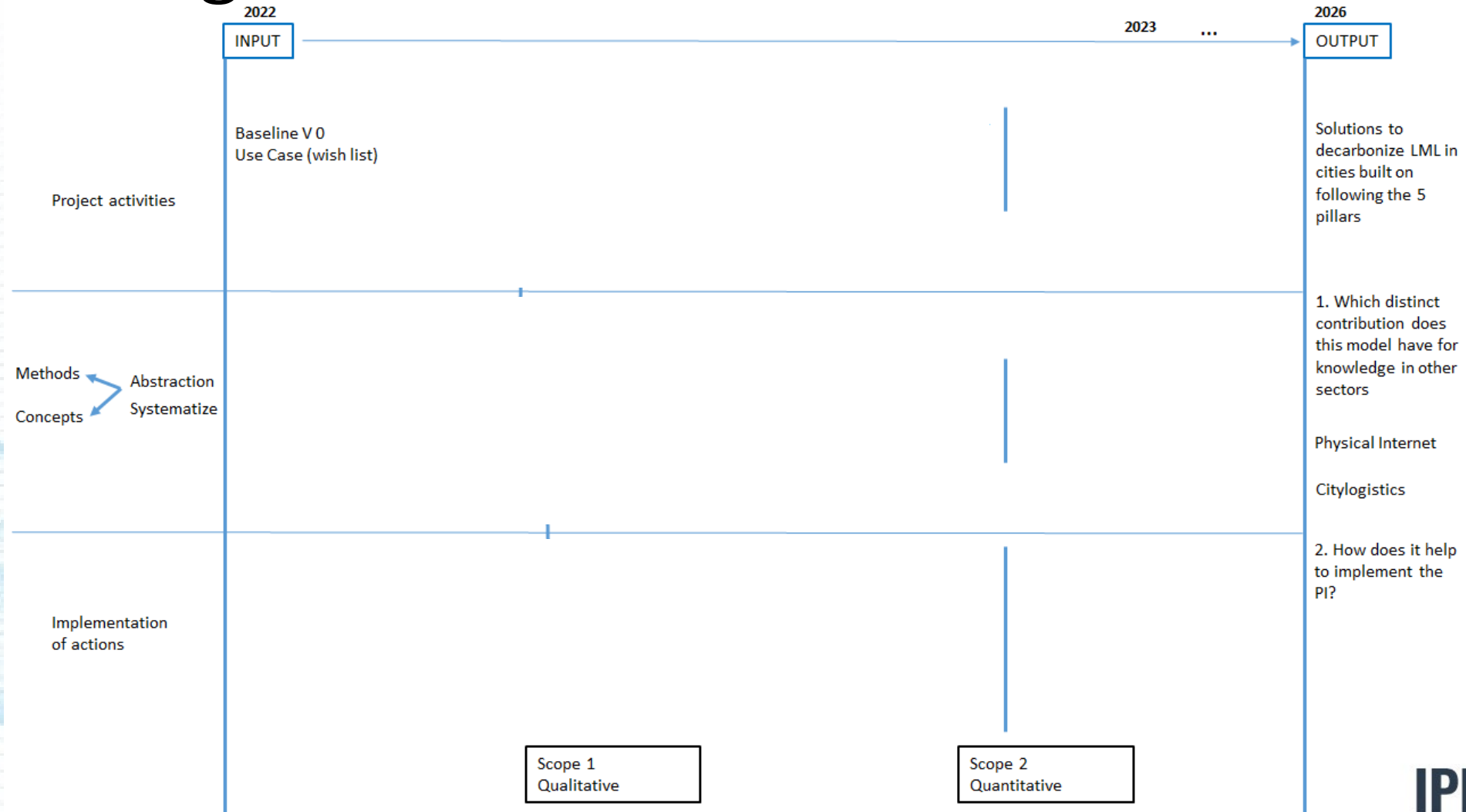
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The black box

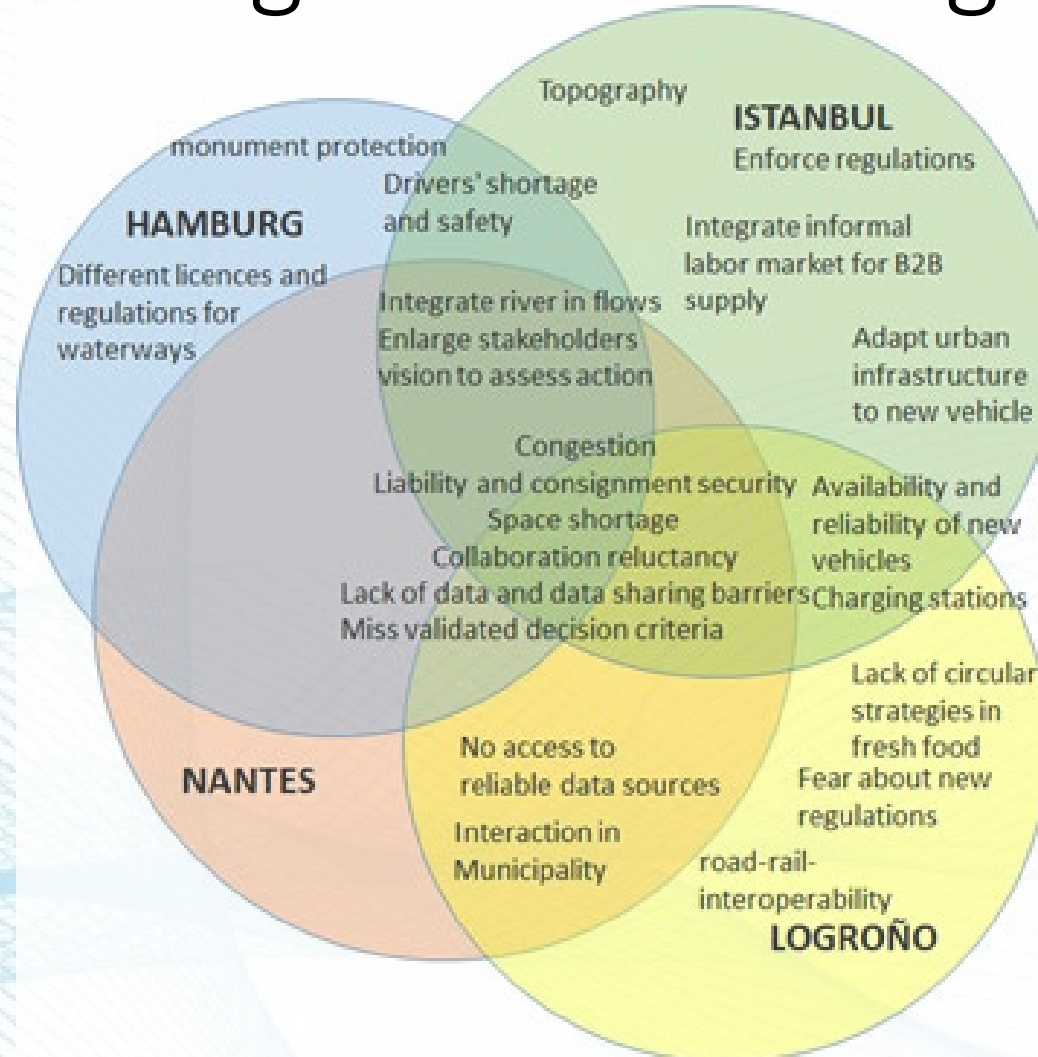


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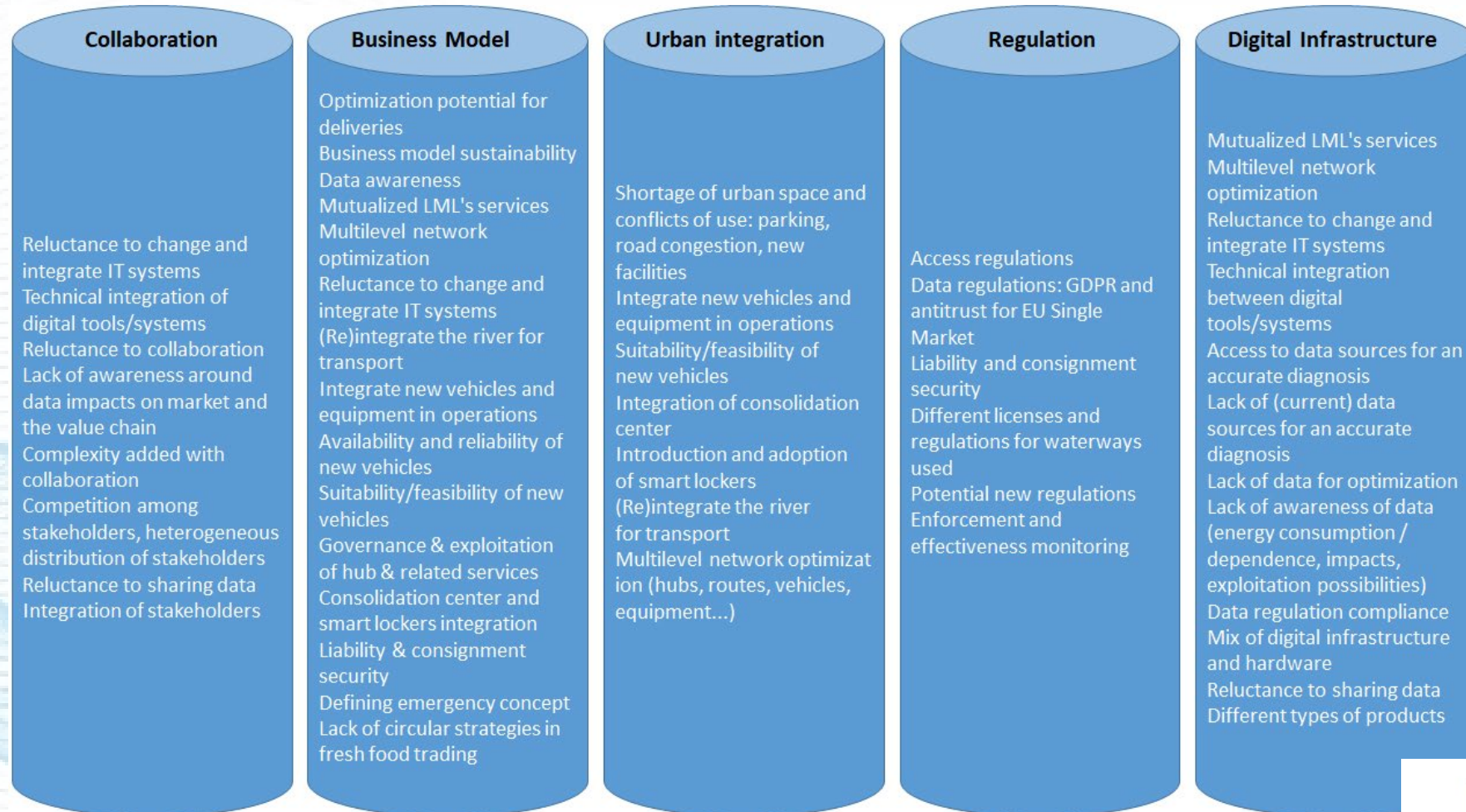
Unveiling the black box



Identified challenges in the Living Labs



Challenges according to the pillars



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Gaps. 1

Consumer-centric focus

Logistics clients' profits & sustainability are largely dependent on urban logistics

Conventional commerce

Overlook demand

Full stack commerce

Sales tool

Data unawareness

Lack of tools and knowledge of regulation – **unfair competition** EU Single Data Market – hamper

Get Access Treat

Perception about collaboration

Exploit – Comply

New business models

Actions. Focus

Business advantage

Compliance verification

Depends on operational and data interoperability to scale and enact

Collaboration

Data exploitation strategies

Engage with customers

Digital / Data

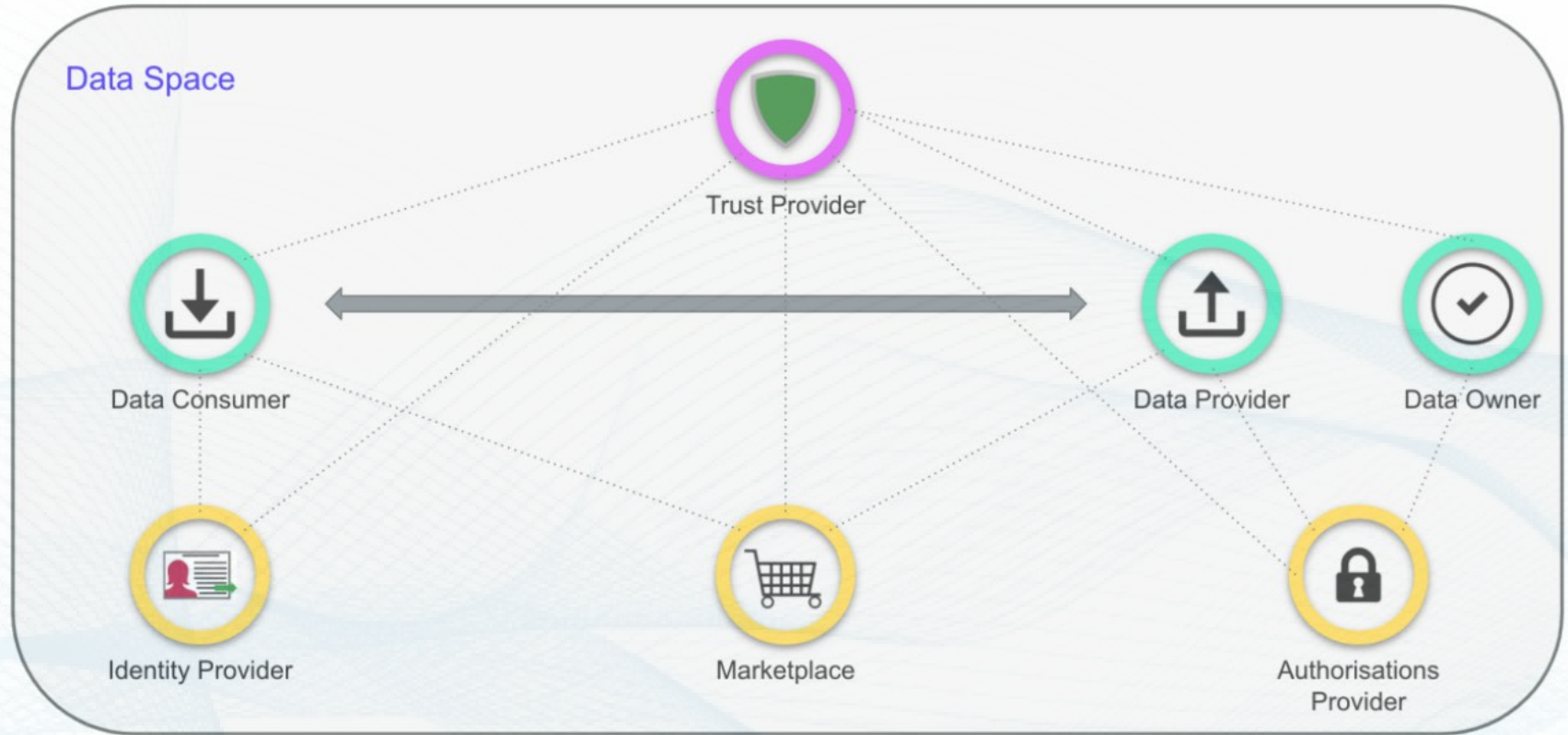
Sustainable logistics

Actions. Core digital infrastructure

DSS & Data Spaces

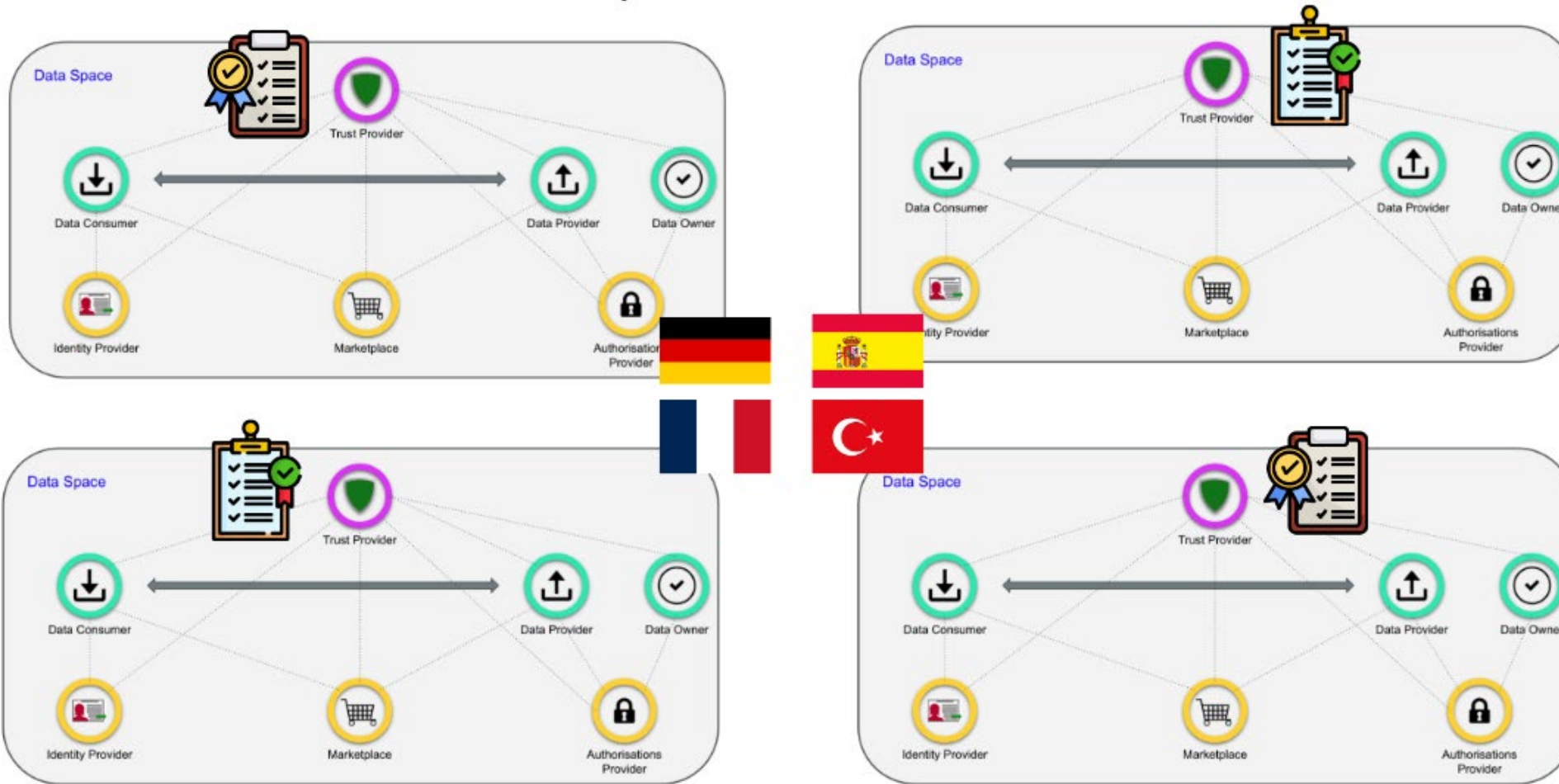
DSBA convergence architecture

- Data models
- Common API
- Common identity and authorization
- Data Space policies
- City public standards to access
- Regulations & certified labels to guarantee **sustainable logistics performance**
- Licenses for exploitation
- Marketplace with local aware filters
- Data Wallets

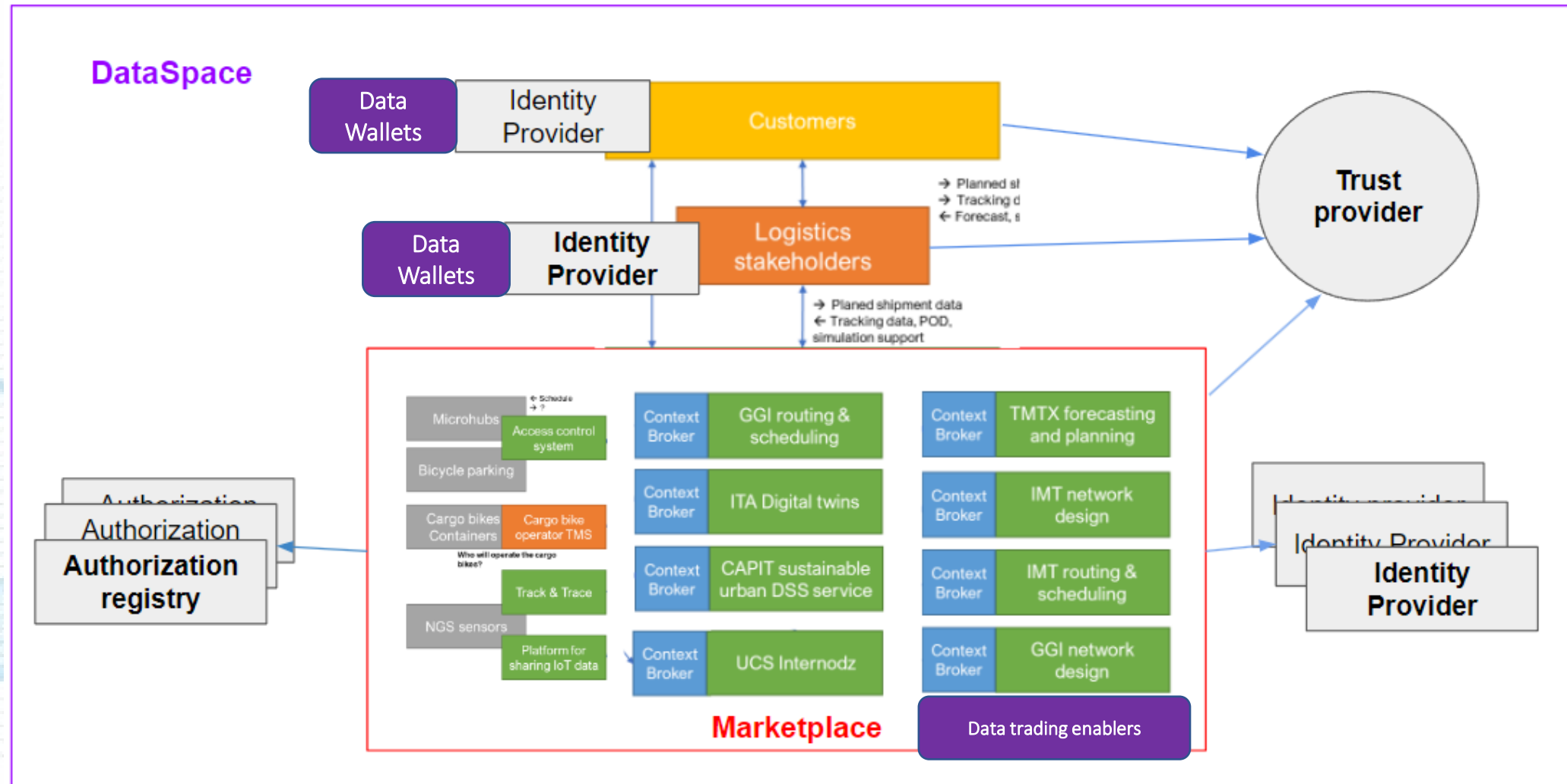


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Actions. Federated Data Spaces



Actions. Federated Data Spaces. Services



Next steps

USE CASES PROGRESS

Synergies between
Customer centric pharma
 distribution and parcel delivery –
 Logroño

e-commerce logistics network
 design based on omnichannel
 customer profiling – Istanbul

Local bio-producers
 decarbonized B2B2C sales
 channels – Logroño

...

DEEP CRITERIA

**Demand & offer
 characterization &
 Concentration**
 (KPIs & OKRs)

CORE DIGITAL INFRASTRUCTURE

FEDERATED CONVERGENCY

DECISION SUPPORT SYSTEM

Demand modeling
 Capacities modeling
 Collaboration modeling
Demand & offer sensitive network design &
optimization – e.g. micro hubs, temporary,
 shuttle...
 Multimodal (cargo bike+EV) routing

IT tools & services

Demand forecast
 π containers
 π cargo e-bikes
 μ hubs
 Mobile hubs
Data counsel
 ...

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Thank you

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DECARBOMILE



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Next steps - Actions. **FEDERATED** Data Spaces

Data models Common API

Common identity and authorization

Data Space policies

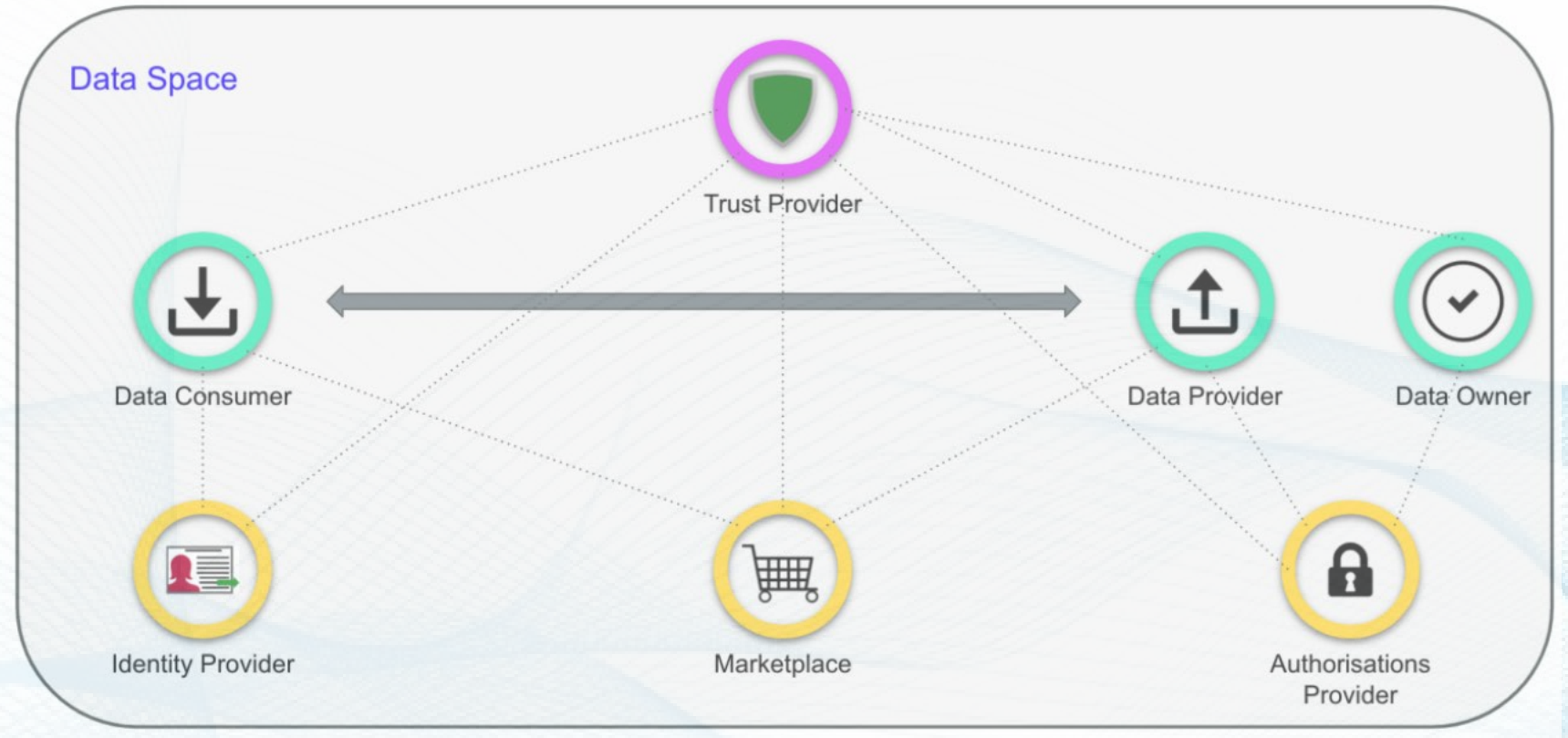
City public standards to access

Regulations, semantics & certified labels to guarantee sustainable logistics performance

Licenses for exploitation

Marketplace with local aware filters

Data Wallets

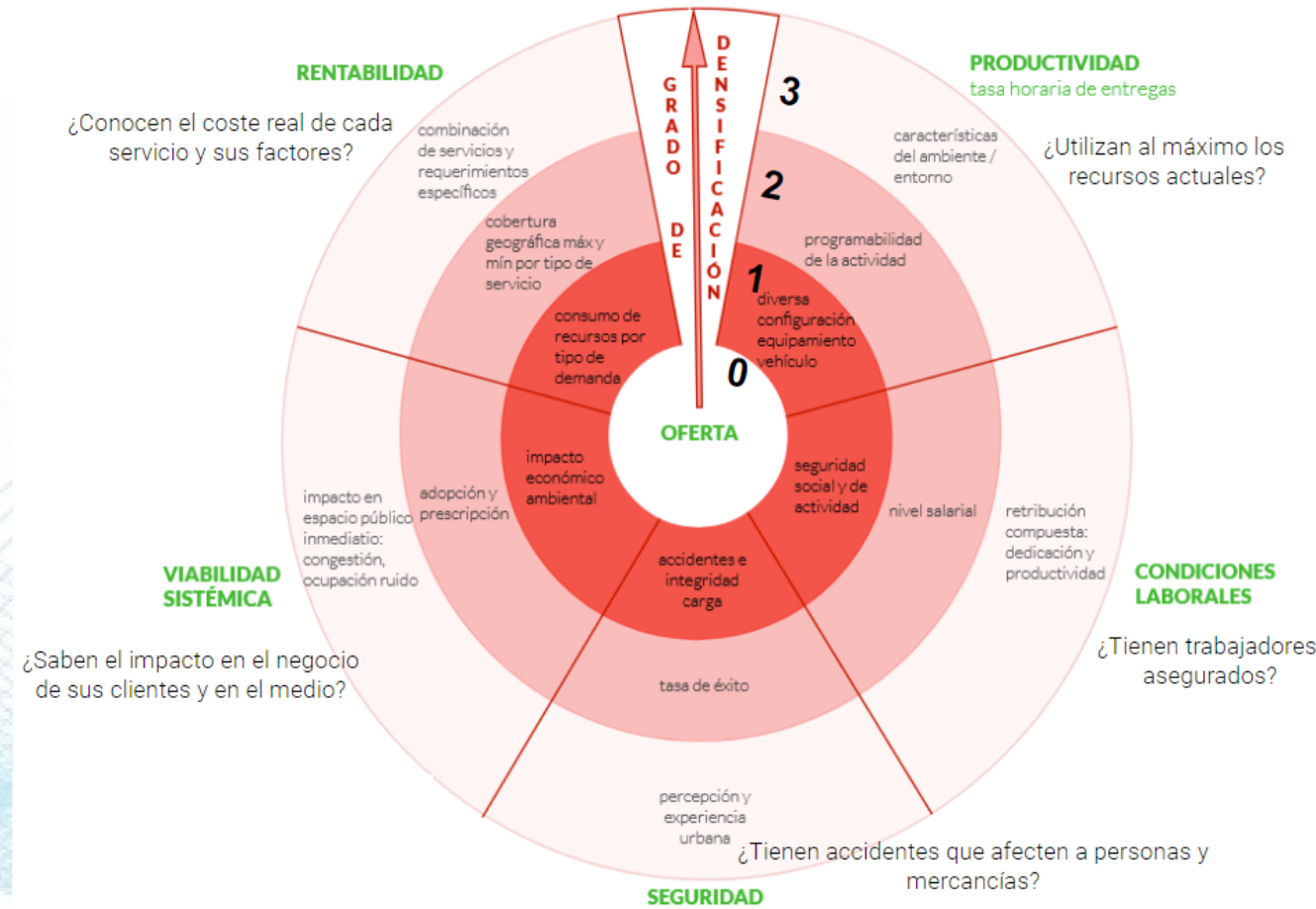
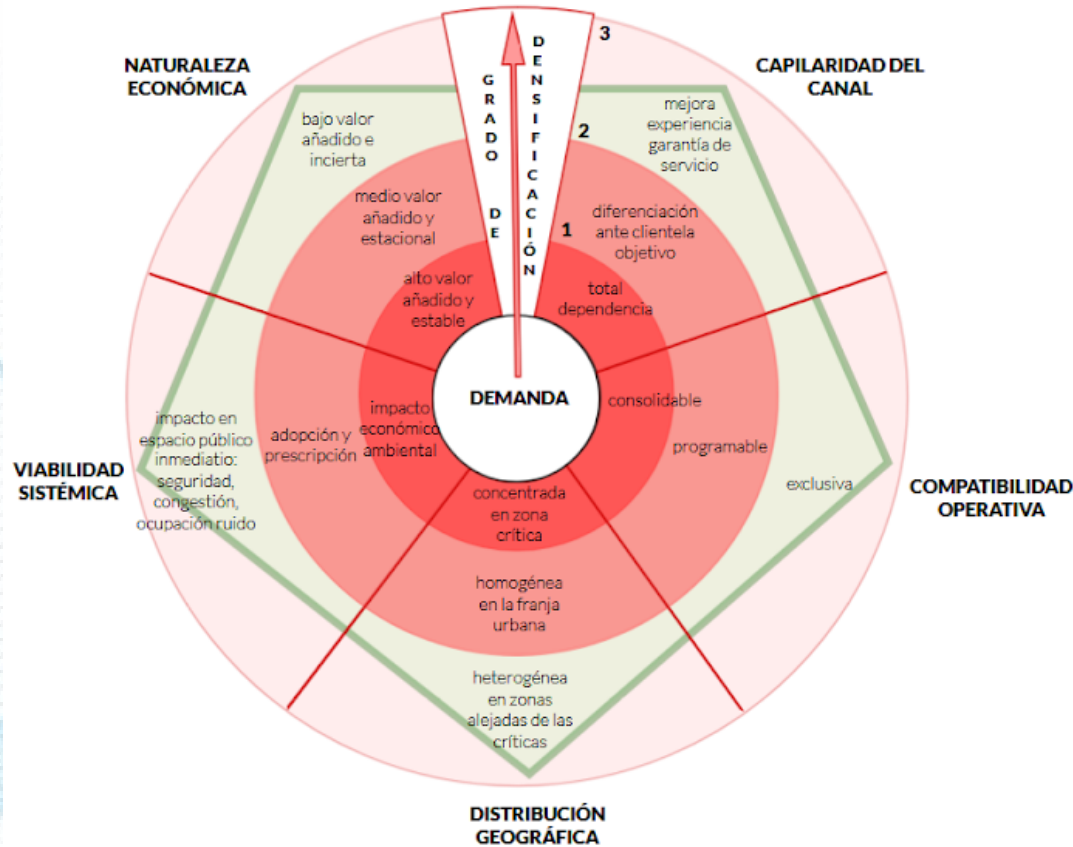


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Next steps. High level criteria. Validate and refine

Cluster	Living Lab (where challenge is)	Sustainability (what the challenges impacts on/affects)					Actions (how to act on the challenge)																	
		offer			demand		Pillars				Agents		PI Elements											
		social	environmental	economical	social	environmental	digital infrastructure	urban integration	collaboration	business model	regulation	city	LML Operator	movables	goods, persons, infor	transport	traffic	land use	accession	activities	built infrastructure	facilities	digital infrastructure	nodes
		working conditions	safety	systemic viability (emissions), scalability (adoption, prescription), liveability (urban experience: noise/accessibility/congestion/spa ce use/...)	productivity	profitability	geo-distribution	systemic viability	economic nature	channel capillarity	operational compatibility	built infrastructure	facilities	Modal shift	Customer engagement / role	Added value services:	customization, data valorization							
Istanbul																								
Hamburg																								
Nantes																								
Logroño																								

Next steps. Demand & offer characterization & densification



Next steps. Demand & offer sensitive network design

Los mayores contribuyentes al Gas de efecto Invernadero [GEI] en Jalisco son:

